

Title (en)

METHOD AND APPARATUS FOR COATING DIAMOND-LIKE CARBON ONTO PARTICLES

Title (de)

VERFAHREN UND VORRICHTUNG ZUR HERSTELLUNG VON DIAMANTARTIGEN KOHLENSTOFFSCHICHTEN AUF PARTIKELN

Title (fr)

PROCEDE ET APPAREIL D'ENDUISAGE DE PARTICULES AVEC DU CARBONE EN FORME DE LOSANGE

Publication

EP 1034320 B1 20011219 (EN)

Application

EP 98950973 A 19981007

Priority

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Abstract (en)

[origin: US6197120B1] A method for making particles coated with a diamond-like network, which can include additive components. The method comprises subjecting a multiplicity of particles to a carbon-based plasma in an evacuated radio frequency powered capacitively coupled reactor system in which ion sheaths are formed around the electrodes and wherein the particles are agitated in such a manner as to expose their surfaces to the reactive species in the plasma while keeping the particles substantially within an ion sheath. The advantages of the present invention include (i) the efficient deposition of DLN onto particles at high deposition rates, (ii) the deposition of densely-packed DLN coatings, (iii) the ability to perform in situ surface cleaning of particles by ion bombardment with oxygen- and argon-containing plasmas prior to deposition of DLN, and (iv) the ability to tailor the bulk and surface properties of the coatings by manipulating the composition of the coating and the intensity of ion bombardment during the coating process.

IPC 1-7

C23C 16/44; **C23C 16/50**; **C23C 16/26**; **B22F 1/02**

IPC 8 full level

B01J 2/00 (2006.01); **B22F 1/16** (2022.01); **C23C 16/26** (2006.01); **C23C 16/27** (2006.01); **C23C 16/44** (2006.01); **C23C 16/442** (2006.01); **C23C 16/505** (2006.01); **C23C 16/509** (2006.01)

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B01J 2/006 (2013.01 - EP US); **B22F 1/16** (2022.01 - EP KR US); **C23C 16/26** (2013.01 - EP KR US); **C23C 16/4417** (2013.01 - EP KR US); **C23C 16/442** (2013.01 - EP KR US); **C23C 16/5096** (2013.01 - EP KR US); **Y10S 427/106** (2013.01 - EP US)

Cited by

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US 6197120 B1 20010306; AU 9687898 A 19990615; CN 1109776 C 20030528; CN 1279729 A 20010110; DE 69803096 D1 20020131; DE 69803096 T2 20020822; EP 1034320 A1 20000913; EP 1034320 B1 20011219; JP 2001524603 A 20011204; JP 4336040 B2 20090930; KR 100582134 B1 20060523; KR 20010032454 A 20010425; TW 414726 B 20001211; US 6015597 A 20000118; WO 9927157 A1 19990603

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